

Appl. No. : 10/007,896  
Filed : November 13, 2001

### REMARKS

In response to the Office Action mailed June 20, 2003, Applicant respectfully requests the Examiner to reconsider the above-captioned application in view of the foregoing amendments and the following comments. The present application is a divisional application of Application Serial No. 09/538,658, filed March 30, 2000 (hereinafter "the parent application"), now issued U.S. Patent No. 6,491,750. Some of the reasons for rejection in this case were addressed in a preliminary amendment filed in a continuation of the parent application, Application Serial No. 10/298,360, filed Nov. 14, 2002.

The Examiner has rejected the pending claims under 35 U.S.C. 112, first paragraph, because the Examiner believes the specification does not enable one of ordinary skill in the art to practice the invention commensurate in scope with the claims. The Examiner has also rejected the pending claims under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the applicant regards as the invention. A brief discussion of these issues is recited below.

### OVERVIEW

Generally, any color can be described in terms of its hue, value, and chroma. Hue is the quality of color described by words like "red" and "blue." Value is a measure of a color's lightness or darkness. Chroma is a measure of a color's brightness, or intensity. A color space is an analytical tool for describing a multitude of colors. Color scientists often describe color by reference to a three-dimensional color space in which color is described by the three aforementioned qualities: hue, value, and chroma, each of which varies as you move within the color space. Each position within the color space describes one unique color. In effect, the hue, value, and chroma of any color are that color's coordinates within the color space.

Applicants have developed a product referred to as a "neutral paint colorant." In addition, Applicants have developed a process for making a variety of neutral paint colorants. The neutral paint colorant, or simply "neutral colorant," advantageously facilitates the development of many different paint colors within a color space. In particular, the neutral colorant makes it relatively easy to produce paint colors within narrowly defined ranges of hue and value. The neutral colorant has the property that when it is blended with a paint, it reduces the paint's chroma (brightness) without any substantial change in the paint's hue (quality of the color – like red or blue). Previously, the practice of changing a paint's chroma necessitated the

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addition of additional colorants to compensate for shifts in hue and/or value. However, the neutral colorant reduces the paint's chroma without requiring additional colorants. The neutral colorant can also be added to a paint without substantially changing the paint's value (lightness or darkness). This can be easily achieved by pre-blending the neutral colorant with a paint base (a "paint base" is a term having a known meaning in the paint industry, there being a variety of standard paint bases) to have the same value as the paint whose chroma is desired to be changed. Thus, the neutral colorant provides the heretofore elusive benefit of varying a paint's chroma without varying the hue and where desired the value of the paint.

The neutral colorant comprises a mixture of constituent colorants, each of which comprises a pigment mixed with a grinding liquid. The neutral colorant can comprise any of a variety of different compositions of colorants. Applicants' disclosure teaches a general method for forming a neutral colorant. First, a first colorant and one or more offsetting colorants are selected. These colorants are selected such that they can be blended together to produce a zero-chroma color (hence the term "offsetting colorants"). The first colorant is blended with a paint base. The chroma of the resultant paint is measured, using, for example, a spectrophotometer. *See* specification, paragraph 13. If the chroma is not substantially equal to zero, then quantities of the one or more offsetting colorants are added until the chroma is substantially equal to zero. Then, an additional quantity of the first colorant or a quantity of the paint base is added, to vary the paint's value. The chroma is again measured. If the chroma is not substantially equal to zero, then the offsetting colorants are again added until the paint's chroma is substantially equal to zero. These steps are preferably repeated a number of times ("iterations") over a range of values within which the neutral colorant is to be used. The neutral colorant composition comprises the relative proportions of the first and offsetting colorants, compared to the total quantity of colorants added. With each iteration of the process, the composition of the neutral colorant becomes more finely calibrated. Thus, it is preferable to perform at least three, and preferably many more than three, iterations. *See* specification, paragraph 39.

By using this method, Applicants developed a neutral colorant comprising a mixture of known Color Index Pigments Black 7, Red 101, and Yellow 42. In addition, the disclosure specifically contemplates the formation of a wide variety of neutral colorants comprising different combinations of pigments. The disclosure explains how this is accomplished.

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A. Enablement Rejections

In the parent application, the Examiner rejected Claims 1-3 and 11-15 (which are identical to Claims 1-3 and 11-15 of the present application) under 35 U.S.C. § 112, first paragraph, on the basis that the specification does not enable any person skilled in the art to practice the invention commensurate in scope with these claims. In particular, the Examiner asserted that the specification only describes a paint colorant comprising Color Index Pigments Yellow 42, Red 101, and Black 7. Thus, the Examiner concluded that this feature should be recited in the claims. Applicants respectfully disagree with the Examiner and submit that this rejection was improper. In particular, Applicants submit that the specification enables the skilled artisan to make the colorant of the invention from different mixtures of pigments.

1. Specification teaches a general method

The specification teaches a general method of forming a “neutral colorant” from constituent pigments. In addition, the specification discloses a specific example comprising a mixture of Color Index Pigments Yellow 42, Red 101, and Black 7. It is improper to require Applicants to limit the scope of protection to the specifically disclosed pigments.

A patent must contain a description that enables one skilled in the art to make and use the claimed invention. However, an inventor need not explain every detail, since he or she is speaking to those skilled in the art. *DeGeorge v. Bernier*, 768 F.2d 1318, 226 U.S.P.Q. 758 (Fed. Cir. 1985). “Nothing more than objective enablement is required, and therefore it is irrelevant whether this teaching is provided through broad terminology or illustrative examples.” *In re Wright*, 999 F.2d 1557, 27 U.S.P.Q. 2d 1510 (Fed. Cir. 1993).

Independent Claim 1 recites a method of forming a neutral paint colorant. The method involves blending a first colorant with a paint base to form a paint having a chroma substantially equal to zero and having a value; adding a first quantity of one of said first colorant or said paint base to said paint, to vary the value of said paint; measuring the chroma of said paint; and if the chroma of said paint is not substantially equal to zero, adding one or more offsetting colorants to said paint to reduce the chroma of said paint so that it is substantially equal to zero; wherein said neutral paint colorant comprises a mixture of said first colorant and said offsetting colorants, the composition of said neutral colorant being determined by the relative amounts of said first colorant and said offsetting colorants which are in said paint.

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Claims 2 and 3 both depend from independent Claim 1.

Independent Claim 11 recites a method for producing a paint. The method involves blending a mixture of pigments with a grinding liquid to form a neutral paint colorant; adding said neutral paint colorant to a first paint base to form a first paint; and adding a volume of said first paint to a volume of a second paint having a chroma and a value to form a third paint having a chroma and a value; wherein the chroma of said third paint is less than the chroma of said second paint, the hue and value of said third paint being substantially the same as the hue and value of said second paint.

Claims 12-14 depend from independent Claim 11. Claim 15 depends from Claim 14.

With respect to Claims 1-3 and 11-13, the claimed invention involves a paint colorant that has the recited properties and is not limited to specific constituent pigments (i.e., Color Index Pigments Yellow 42, Red 101, and Black 7).

Applicants submit that, in this case, the enablement requirement of section 112 is met because the specification includes a detailed description of a method of making a "neutral colorant" of the type defined by Claims 1-3 and 11-13. In particular, the specification discloses a method generally involving the steps of blending a first colorant<sup>1</sup> having substantially zero chroma (i.e., within a given tolerance) with a paint base to form a paint. If the chroma of the formed paint color is not substantially zero, then offsetting colorants are added until the chroma of the resultant paint color is brought back to substantially zero. Then, more of the first colorant or the paint base is added to vary the value of the paint color (i.e., the measure of the paint color's white/black level). If the chroma of the formed paint color is not substantially zero, then offsetting colorants are again added until the chroma of the resultant paint color is brought back to substantially zero. This process is repeated a number of times (preferably at least three times, and more preferably a larger number of times) to calibrate the composition of the desired neutral colorant across a given color value range. This general method of forming a paint colorant is clearly described in the specification. *See* paragraphs 14 and 37-41. Further, the specification discloses a specific example of a paint colorant formed according to this method, comprising Color Index Pigments Yellow 42, Red 101, and Black 7. *See* paragraphs 42 and 43.

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<sup>1</sup> A "colorant" is a mixture of one or more pigments with a grinding liquid. The "neutral colorant" of the invention comprises a mixture of other colorants. In the preferred embodiment, the neutral colorant comprises a mixture of colorants formed with Color Index Pigments Yellow 42, Red 101, and Black 7.

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Thus, the specification teaches the skilled artisan how to make a paint colorant as defined by Claims 1-3 and 11-13, and which may comprise any of a variety of different constituent pigments. The fact that the specification additionally discloses a specific composition of a paint colorant formed according to the disclosed method (comprising a mixture of Color Index Pigments Yellow 42, Red 101, and Black 7) does not imply that the method cannot be practiced to form a colorant with a different mixture of constituent pigments. The broader concept of a neutral colorant is clearly described and enabled.

2. Different colorant compositions are possible

Applicants wish to make clear that it is straightforward to form a neutral colorant of the invention from pigments other than those specifically disclosed in the specification, using the disclosed method. For example, using the methods disclosed in the specification, neutral colorants may be formed using the following compositions:

- 3.46% Color Index Pigment Black 7, 7.54% Color Index Pigment Red 101, and 2.17% Color Index Pigment Green 7
- 4.29% Color Index Pigment Black 7, 8.25% Color Index Pigment Yellow 42, and 1.49% Color Index Pigment Red 122
- 4.52% Color Index Pigment Black 7, 7.53% Color Index Pigment Yellow 42, and 1.36% Color Index Pigment Red 188

The methods disclosed in the specification could alternatively be used to form neutral colorants having different mixtures of pigments. There is no legal basis for limiting Applicants' invention to the specifically disclosed Color Index Pigments Black 7, Red 101, and Yellow 42.

3. No undue experimentation

"Although not explicitly stated in section 112, to be enabling, the specification of a patent must teach those skilled in the art how to make and use the full scope of the claimed invention without 'undue experimentation.'" *In re Wright*, 999 F.2d 1557, 27 U.S.P.Q. 2d 1510 (Fed. Cir. 1993). "Whether undue experimentation is needed is not a single, simple factual determination, but rather is a conclusion reached by weighing many factual considerations." *In re Wands*, 858 F.2d 731, 8 U.S.P.Q. 2d 1400 (Fed. Cir. 1988). Factors to be considered in determining whether a disclosure would require undue experimentation include (1) the quantity of experimentation

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necessary, (2) the amount of direction or guidance presented, (3) the presence or absence of working examples, (4) the nature of the invention, (5) the state of the prior art, (6) the relative skill of those in the art, (7) the predictability or unpredictability of the art, and (8) the breadth of the claims. *Id.* “It is not fatal if some experimentation is needed, for the patent document is not intended to be a product specification.” *Northern Telecom, Inc. v. Datapoint Corp.*, 908 F.2d 931, 15 U.S.P.Q. 2d 1321 (Fed. Cir. 1990). “Routine experimentation does not constitute undue experimentation.” *Johns Hopkins University v. Cellpro, Inc.*, 152 F.3d 1342, 47 U.S.P.Q. 2d 1705 (Fed. Cir. 1998).

Applicants submit that a skilled artisan, having read Applicants’ disclosure, will be able to produce a paint colorant as defined by Claims 1-3 and 11-13 that does not necessarily comprise the specifically disclosed Color Index Pigments Yellow 42, Red 101, and Black 7, without undue experimentation. A consideration of the above eight factors supports Applicants’ contention that undue experimentation is not required.

With respect to the first factor, it is not necessary to perform an inordinate degree of experimentation to produce a paint colorant according to the invention. The skilled artisan only needs to select a first colorant and a number of offsetting colorants that undo the chromatizing effects of the first colorant. The artisan will understand how to select offsetting colorants, based upon known principles of color science (especially principles of color complements). The artisan then needs to perform an arbitrary number of iterations (e.g., at least 3 iterations) of the above-described method (i.e., blend first colorant with base and add offsetting colorants to reduce chroma of resultant paint) in order to more precisely define a neutral colorant across a color value range of interest.

With respect to the second factor, the specification provides a detailed description of a method of producing a colorant according to the invention. With respect to the third factor, the specification provides a specific example composition of a colorant (comprising a mixture of Color Index Pigments Yellow 42, Red 101, and Black 7) produced according to the method. The detailed description of the method and the specifically disclosed example colorant provide sufficient guidance to the skilled artisan.

With respect to the fourth, fifth, and sixth factors, there is nothing in the nature of the invention that makes it challenging for a skilled artisan to produce a colorant according to the invention. The science of color, paint, and paint colorants is highly developed. Many different

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pigments are known in the art, as well as the effects of mixing such pigments. Color and paint technicians are highly skilled in the art of paint and paint colorant production and understand how to vary the hue, value, and chroma of paint according to given specifications.

With respect to the seventh factor, the above-described method of producing a paint colorant according to the present invention would not entail significant unpredictability. The predictability of the process depends to some degree upon the first and offsetting colorants chosen. Also, Applicants acknowledge that a paint colorant of the present invention may behave somewhat unpredictably. For example, the specifically disclosed colorant (comprising a mixture of Color Index Pigments Yellow 42, Red 101, and Black 7) operates well with white or tint bases, pastel bases, and midtone bases, but not with clear or deep bases or with bases having a large proportion of machine-tinted colorants.

With respect to the eighth factor, the rejected claims are intended to encompass paint colorants having the property of reducing the chroma of paint without substantially affecting the paint's hue and possibly value. The claims are not intended to be limited to colorants having a specific composition of pigments. The specification discloses a general method for producing colorants commensurate with the scope of the rejected claims.

Thus, Applicants submit that undue experimentation is not required to produce a colorant according to the invention, which does not necessarily comprise a mixture of Color Index Pigments Yellow 42, Red 101, and Black 7.

Thus, for the reasons stated above, Applicants respectfully submit that the claims are in compliance with 35 U.S.C. § 112, first paragraph.

B. Indefiniteness Rejections

In the parent application, the Examiner rejected some of the claims under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. Applicants respectfully submit that these rejections were improper.

1. Claims not limited to specific colorant compositions

In the parent application, the Examiner rejected Claims 1-3 and 11-15 (which are identical to Claims 1-3 and 11-15, respectively, of the present application) as being unclear as to

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the composition of the colorants and the paints encompassed by such claims. The Examiner noted that such claims described a colorant and paint based upon resulting properties, which rendered the claims vague and indefinite. Applicants assert that this rejection was improper.

Some of the pending claims are not intended to be limited to any specific composition of specific colorants, paints, or pigments. Rather, these claims are intended to encompass all paint colorants having the properties recited therein. It is submitted that a variety of different compositions can have such properties. Thus, the scope of these claims is defined in terms of properties as opposed to colorant composition.

It is perfectly acceptable to define a paint colorant in terms of resulting properties, as opposed to a composition of specific pigments, colorants, etc. "A patent applicant is free to recite features of an apparatus either structurally or functionally. There is nothing wrong with defining something by what it does rather than what it is in drafting claims." *In re Schreiber*, 128 F.3d 1473 (Fed. Cir. 1997). In this case, some of the pending claims define a paint colorant in terms of its properties, i.e., what it does under certain circumstances. In particular, Claim 1 recites a method of forming a neutral paint colorant. The method involves blending a first colorant with a paint base to form a paint having a chroma substantially equal to zero; adding a first quantity of one of said first colorant or said paint base to said paint, to vary the value of said paint; measuring the chroma of said paint; and if the chroma of said paint is not substantially equal to zero, adding one or more offsetting colorants to said paint to reduce the chroma of said paint so that it is substantially equal to zero; wherein said neutral paint colorant comprises a mixture of said first colorant and said offsetting colorants, the composition of said neutral colorant being determined by the relative amounts of said first colorant and said offsetting colorants which are in said paint. Claim 11 recites a method for producing a paint. The method involves blending a mixture of pigments with a grinding liquid to form a neutral paint colorant; adding said neutral paint colorant to a first paint base to form a first paint; and adding a volume of said first paint to a volume of a second paint to form a third paint; wherein the chroma of said third paint is less than the chroma of said second paint, the hue and value of said third paint being substantially the same as the hue and value of said second paint.

Thus, the methods of Claims 1 and 11 are defined in terms of the resultant properties of a paint formed when the colorant is added to a paint base or a paint. In other words, the colorants



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of these claims are defined by what they do. Under *In re Schreiber*, Applicants submit that defining the colorant in this manner does not render the claims indefinite.

2. Paint “value”

In the parent application, the Examiner rejected some of the claims on the basis that it is unclear what the term “value” referred to. The Examiner also asked what is the value of a paint. The term “value” as applied to color is a standard term of art well known to people in the science of color. A color’s value is a measure of its lightness, in terms of white/black content. The specification describes the concept of color value in significant detail. See specification, paragraphs 4 (lines 6-7), 6 (lines 1-4); 31, 32, and 35, and Figures 1, 2, and 4. A paint’s value is simply the value of the paint color. Applicants submit that the recitation of the term “value” does not render the claims indefinite. The claims will be understood by skilled artisans, particularly when read in light of the specification.

3. Paint “base”

A “paint base” is a term having a known meaning in the paint industry, there being a variety of standard paint bases. Applicant has, however, set out examples of types of paint bases including white or tint, pastels, midtones, clear, deep, bases having machine-tinted colorants, and bases having amounts of titanium dioxide (TiO<sub>2</sub>) as shown on pages 16 and 17 of the specification. Applicant respectfully asserts that the compositions of paint bases would be sufficiently clear to one of ordinary skill in the art.

4. Antecedent Basis

Applicant has amended the claims to give, among other things, the phrase “value” proper antecedent basis.

Nonstatutory Double Patenting

Examiner has provisionally rejected Claims 1-3 and 11-15 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over Claims 10-17 of co-pending Application No. 10/298,360. While Applicant respectfully disagrees with Examiner’s characterization of the applications, Applicant submits a terminal disclaimer in order to advance the prosecution of the application. The terminal disclaimer is enclosed herein.

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Examiner acknowledged that Claims 14 and 15 would be allowable if amended to overcome the obviousness double patenting rejection and the rejection under 35 U.S.C. 112, second paragraph. It is Applicant's belief that Claims 14 and 15, as well as Claims 1-3 and 11-13, are also in condition for allowance and respectfully requests that Examiner withdraw the preceding rejections.

Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410.

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**CONCLUSION**

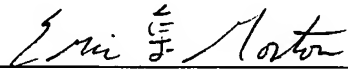
For the foregoing reasons, it is respectfully submitted that the rejection set forth in the outstanding Office Action is inapplicable to the present claims. Accordingly, early issuance of a Notice of Allowance is most earnestly solicited.

The undersigned has made a good faith effort to respond to all of the rejections in the case and to place the claims in condition for immediate allowance. Nevertheless, if any undeveloped issues remain or if any issues require clarification, the Examiner is respectfully requested to call Applicant's attorney in order to resolve such issues promptly.

Respectfully submitted,

KNOBBE, MARTENS, OLSON & BEAR, LLP

Dated: 11-19-03

By:   
Eric K. Morton  
Registration No. 54,588  
Attorney of Record  
Customer No. 20,995  
(949) 760-0404

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